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NESTING HABITS OF THE ANATIDÆ IN NORTH DAKOTA.

BY A. C. BENT.

Plates II-IV.

(Continued from Vol. XVIII, p. 336.)

***Nettion carolinensis* Gmel. GREEN-WINGED TEAL.**

THIS handsome little duck is probably the rarest of the Anatidæ breeding in North Dakota. We did not see a single individual which we could identify as of this species, so I have nothing to add to its life history from personal experience. In the extreme northern portions of the State it is probably more often found breeding. Mr. Job met with it there, on his previous visit in 1898, and I quote from his notes in regard to it, as follows: "On June 20, near Rolla, I was exploring a small pond with rushes around the edges. While wading at the outer edge of the rushes, I heard some pattering sounds, and from almost at my feet eight tiny ducklings followed one another in a line out into the open water. In a moment the mother was on hand, and flapped and dragged herself about, almost within arm's reach of me. The young swam into the rushes again, and the old bird kept up the performance as long as I staid there, flying off and coming back to renew her protestations."

Querquedula discors Linn. BLUE-WINGED TEAL.

This little duck is one of the commonest ducks in North Dakota, possibly the commonest, rivaling in this respect the Pintail and Shoveller, both of which are very abundant.

It is a widely and evenly distributed species, being equally abundant in all parts of the region we visited; we met with it around the shores of all the larger lakes, and could always count on starting one or more pairs from every slough or pond hole that we visited, even the very smallest ones, though they were nowhere congregated in colonies of any size, as were many of the other species. But, in spite of their universal abundance, we were remarkably unsuccessful in finding their nests. Though we spent considerable time hunting for them in suitable localities we succeeded in finding only one nest.

Mr. Job, however, in 1898, found more nests of this species than any other species of duck, and I cannot account for our failure to find them unless possibly we were too early for them. Most of the birds we saw were swimming about or flying about in pairs, which would seem to indicate that incubation had not yet begun, as, after the females begin to incubate, the males usually desert them and congregate in small flocks by themselves.

The nests of the Blue-winged Teal are generally well concealed in the long prairie grass growing around the borders of the sloughs and small pond holes, almost always on dry ground, not far from the water, but sometimes in moist meadows bordering such places, where the grass grows long and thick enough to conceal them. They also nest sparingly on the islands in the large lakes with the Baldpates and Lesser Scaup Ducks.

On June 12, while hunting through some extensive wet meadows near the source of the Goose River in Steel County, not over twenty yards from the river, I flushed a Blue-winged Teal from her nest in a clump of rather tall grass, in an open place, where the dead grass had been beaten down quite flat; the nest was well concealed from view, made of dead grass mingled with a little down, and contained ten perfectly fresh eggs. Undoubtedly, more down would have been added to the nest as incubation advanced, as this is the almost invariable rule with all the ducks,

and as incubated sets of this species are generally plentifully supplied with down, which is sometimes sufficient to conceal the eggs completely.

The ten eggs in this set are fairly typical of the species, of a dull, light cream color, considerably nest-stained, ovate to elliptical ovate in shape, and exhibiting the following measurements: length, 1.95 to 1.86; breadth, 1.43 to 1.38; average, 1.89 by 1.41.

***Spatula clypeata* (Linn.). SHOVELLER.**

The first duck that I saw in North Dakota was a Shoveller flushed from a small slough near the railroad track as we entered the State, and from that time on we saw Shovellers every day in all parts of the region we visited. It is one of the commonest ducks, and is evenly distributed everywhere. The brilliant, striking plumage of the male and the long, broad bill of the female serve to distinguish them at a glance from other species of ducks. They frequent the same localities as the Blue-winged Teal, are equally tame, and probably lay their eggs at about the same time as this species. We found only two nests of the Shoveller, in spite of their universal abundance. From the fact that we frequently saw them flying about in pairs, I inferred that many of them do not complete their sets before June 15, which would make this one of the later laying species. After the sets are completed the males associate with the Mallards and Pintails in the smaller ponds and open sloughs. Nearly every slough, meadow, or pond hole that we visited contained one or more pairs of these handsome little ducks. The charm of collecting and studying birds in this highly favored region is greatly enhanced by constantly flushing this and the other numerous species of ducks from every favorable locality. We were kept in a constant state of delightful expectancy, and were seldom disappointed.

The nesting ground of the Shoveller is the broad expanse of virgin prairie, often far away from the nearest water, sometimes on high, dry ground and sometimes in moist meadow land or near a slough or pond. The first nest that we found was in the center of a hollow in the prairie between two knolls, where the ground was moist but not actually wet, and where the grass grew thick

and luxuriantly. The nest was well hidden in the thick, green grass, so that we never should have found it if we had not flushed the bird within ten feet of us. It was merely a depression in the ground, well lined with dry grasses, and sparingly lined with gray down around the eggs; more down would probably have been added as incubation advanced. The ten eggs which it contained were perfectly fresh when collected on June 3.

The second nest was found on June 7 while driving across the prairie in Nelson County. We had stopped to explore an extensive tract of low 'badger brush,' looking for the nest of a pair of Short-eared Owls which were flying about, as if interested in the locality. We were apparently a long distance from any water, and, while returning to our wagon over a high, dry knoll, flushed the duck from her nest, which was only partially concealed in the short prairie grass. The slight hollow in the ground was lined with dead grasses and a plentiful supply of down. It contained eleven eggs which were too far advanced in incubation to save. I photographed this nest, which is shown in Plate II, Fig. 1. The eggs of the Shoveller are quite similar in color to either the Mallard's or the Pintail's, being very pale olive buff or very pale greenish gray, and having smooth, thin shells with very little lustre; they are, however, decidedly smaller than those of either of the above species; in shape they are nearly elliptical ovate. The eggs of these three species are very much alike in color and texture, but they can generally be distinguished by the shape and size.

The measurements of the first set described above are as follows: length 2.17 to 1.95; breadth, 1.44 to 1.40; average, 2.03 by 1.42.

***Dafla acuta* (Linn.). PINTAIL.**

Judging from our experience, I should call the Pintail the most universally abundant duck in North Dakota, although the Blue-winged Teal, the Shoveller, and, possibly, the Mallard, are close rivals in this respect.

All four of these species are evenly distributed throughout the prairie regions, and are almost sure to be met with in nearly every

lake, pond or slough of any size. We certainly saw Pintails everywhere in both Nelson and Steele Counties, and often found the males congregated in flocks, together with Mallards and Shovellers, in the open sloughs or small ponds, from which they would rise at long range, as we approached, and fly off high up in the air.

The Pintail is an early breeder, beginning to lay early in May; and probably the majority of the broods are hatched by the first week in June. We came across several females with broods of young, and saw some remarkable examples of parental devotion and solicitude, which are very strongly developed in this species.

On June 3 we visited a small slough, in Nelson County, with open water in the centre, from which we started quite a flock of Mallards and Pintails as we approached, and, as we waded out into the marsh, a female Pintail flew towards us, dropped into the water near us, and began splashing about in a state of great excitement. The young ducks were probably well hidden among the reeds, though we could not see or hear them. During all the time, for an hour or more, that we were wading around the little slough that Pintail watched us and followed us closely, flying about our heads and back and forth over the slough, frequently splashing down into the water near us in the most reckless manner, swimming about in small circles or splashing along the surface of the water, as if wounded, and often near enough for us to have hit her with a stick, quacking excitedly all the time. I never saw a finer exhibition of parental devotion than was shown by her total disregard of her own safety, which did not cease until we left the locality entirely. We had a somewhat similar experience near a small slough in Steele County, which resulted in our finding one of the young ducks hidden in the long, thick prairie grass.

The nests of the Pintail are placed almost any where on dry ground, sometimes near the edge of a slough or pond, sometimes on the islands in the lakes, but more often in the prairies, and sometimes a half a mile or more from the nearest water. The young are probably led to the nearest body of water as soon as they are hatched.

The nest is generally poorly concealed, and often in plain sight. A deep hollow is scooped out in the ground, which is sparingly lined with bits of straw and stubble, and a scanty lining

of down is deposited around the eggs. The eggs, which are usually from eight to ten in number, are quite similar to the Mallard's but are usually somewhat smaller, more elongated, and a little more glossy. The color is a pale olive green or a pale olive buff, and the shape an elliptical ovate.

The measurements of the only set before me are as follows: length, 2.36 to 2.13; breadth, 1.57 to 1.49; average, 2.28 by 1.53.

The first nest we found, on May 31, was concealed in rather tall prairie grass on the highest part of a small island in one of the larger lakes. We flushed the bird from almost under our feet, and easily identified her, as she flew away, by the long slender neck, uniformly light mottled upper parts and inconspicuous dark speculum. The absence of the conspicuous white-bordered purple speculum and the small size of the bill serve to separate it from the Mallard and the Shoveller, for which the eggs might possibly be mistaken, though the eggs of the latter are smaller. The nest was well lined with down and contained six eggs, apparently nearly fresh. We visited this nest again on June 15, and found the bird still incubating, no more eggs having been laid.

On June 15 we found another Pintail nest in an open situation among rather sparse but tall prairie grass, which was in plain sight, the eggs being beautifully concealed by a thick covering of down. Another nest was shown to us by some farmers who were ploughing up an extensive tract of prairie, and had flushed the bird as they passed within a few feet of the nest. This was fully half a mile from the nearest water. They left a narrow strip, containing the nest, unploughed, but something destroyed the eggs a few days afterwards.

The only set I was able to photograph or collect was found in Steele County, on June 10, and is shown in the accompanying photograph (Pl. II, Fig. 2).

While walking along the edge of a cultivated wheat field, close to the crest of a steep embankment sloping down into a large slough, we flushed a female Pintail from almost under our feet. The nest was a deep hollow in the bottom of a furrow, 7 inches wide by 4 inches deep, lined with bits of straw and weed stubble, with a moderate supply of down surrounding the eggs. It was very poorly concealed by the scanty growth of weeds around it.



FIG. 1. NEST AND EGGS SHOVELLER.

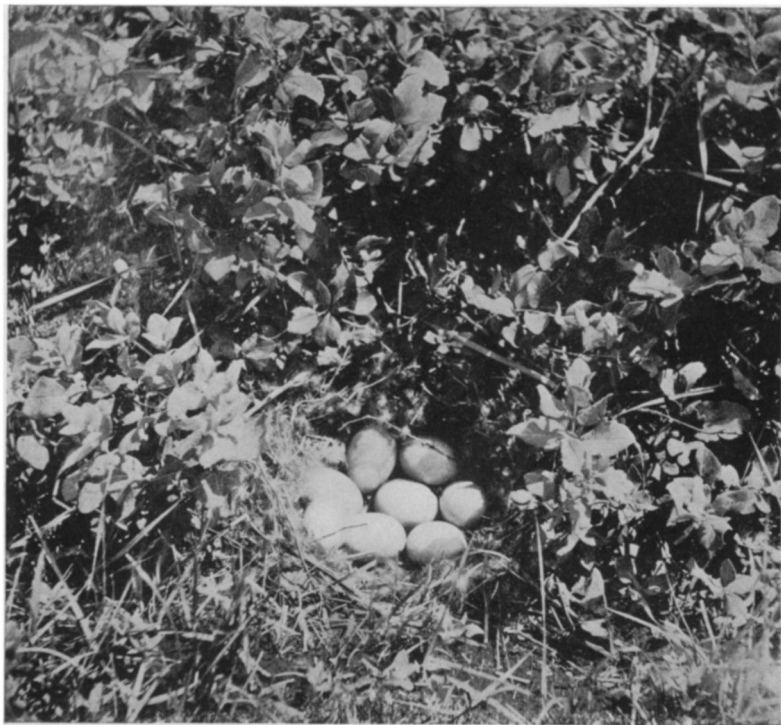


FIG. 2. NEST AND EGGS OF PINTAIL.

The eight eggs which it contained proved to be heavily incubated.

The eggs are fairly typical of the species, and measure as follows: length, 2.36 to 2.13; breadth, 1.57 to 1.49; average, 2.28 by 1.53.

The bird was quite demonstrative and solicitous, which seems to be characteristic of the species.

***Aythya americana* (Eyt.). REDHEAD.**

We now come to the subfamily of sea ducks, three species of which, the Redhead, the Canvasback, and the Ruddy Duck, are exclusively slough breeders. The Redhead is by far the commonest of these three species, and probably far outnumbers any other species of this subfamily in North Dakota.

It is very common in all the larger sloughs, but was not found by us in any of the smaller sloughs, and was not, as far as I can remember, seen in any of the larger lakes, where it certainly does not breed.

We first met with it on June 3 in a large slough in Nelson County, where the water was not over knee deep, except in a few scattered open spaces, and where the reeds and flags were somewhat scattered and open. A pair of Canada Geese nested in this slough and two pairs of Marsh Hawks, but it was chiefly tenanted by Yellow-headed Blackbirds, Coots, and Long-billed Marsh Wrens. The Blackbirds fairly swarmed in this slough, and the constant din of their voices was almost bewildering, especially whenever one of the Marsh Hawks sailed out over the slough, which sent them all up into the air at once, cackling and squeaking, hovering and circling about for a few moments, and then settling down into the reeds again. Redheads were flying back and forth across the slough, Killdeers, Willets, and Wilson Phalaropes were flying about the shores, and Long-billed Marsh Wrens were singing among the flags on all sides. While wading along a shallow ditch through a small patch of last year's flags, a big brown duck sprang into the air from a clump of tall reeds, and, after a short search, I found my first nest of the Redhead, well concealed among the reeds. It was a handsome nest, well made of dead reeds, deeply hollowed and lined with broken pieces of the reeds mingled with consider-

able white down, especially around the upper rim ; it measured 16 inches in diameter outside and 8 inches inside, the upper part of the rim being about 10 inches above the water ; it rested on a bulky mass of dead reeds built up out of the shallow water, the whole structure being firmly held in place by the live growing reeds about it. It held eleven handsome eggs, in which incubation had just begun. I could not photograph this nest, as it was raining hard, but I collected the nest and eggs, which are now in my cabinet.

We found two more nests of the Redhead in this slough, one of which, found by Mr. Job, contained the unusually large number of twenty-two eggs, which were nearly ready to hatch. Large sets of this species are not uncommon, so that probably these eggs were all laid by the same bird. The third nest was similarly located, but not so well made as the first one. I flushed the bird from it in an area of rather open reeds where the water was not very deep. She flew back and forth across the slough several times, and was soon joined by her mate ; the pair then circled about in the vicinity as long as I remained near the nest, showing more solicitude than is customary with this species. The nest was a large one, measuring 18 inches in diameter ; it was a bulky mass of dead reeds built up out of the shallow water to a height of about 6 inches, and hollowed in the centre about 4 inches ; there was very little down used in its construction. The rim of the nest had been broken down on one side, probably by the hasty departure of the duck, so that several of the eggs had rolled out into the water. There were fifteen eggs in the set, which proved to be perfectly fresh.

We found the Redheads breeding in two large, deep sloughs in Steele County. One of these, in which we found four nests of the Redhead, is illustrated in the photograph (Pl. III, Fig. 1). In the open part of this slough, shown in the foreground, the water was too deep to wade, but, in the southern end of the slough, shown in the background, the water was seldom deeper than the tops of our hip boots, and in many places quite shallow. The principal growth was the tall slough reeds, quite thick in some places, and often as high as our heads, with numerous thick patches of tall cat-tail flags and several patches of the 'queen of the prairie'



FIG. 1. NESTING SITE OF CANVASBACKS AND REDHEADS.



FIG. 2. NEST AND EGGS OF REDHEAD.

reeds growing in the drier portions. The Redheads' nests were all located in the shallower parts of the slough where the reeds and flags were growing less thickly.

Pied-billed Grebes, Canvasbacks and Ruddy Ducks were nesting in this slough, as well as hundreds of Yellow-headed Black-birds and Coots.

The Redheads' nests found here on June 10 contained six, ten, fourteen, and sixteen eggs respectively, none of which were collected. The latter of these is shown in the photograph (Pl. III, Fig. 2); it was located in the centre of a tangled mass of broken down dead flags, in a nearly dry, open space, near the edge of the slough, well concealed from view by the arching over of the dead flags above it. The bird proved to be a close sitter, as we twice flushed her from the nest. We tested one of the eggs and found it far advanced in incubation.

The Redhead seems to be particularly careless about laying its eggs in other ducks' nests. We found one of its eggs in a Ruddy Duck's nest in this slough, and in three cases found from three to four of its eggs in nests of the Canvasback, on which the latter duck was incubating; but we never found the eggs of any other species in the Redheads' nests.

The eggs of the Redhead can generally be distinguished from those of any other species, as they are usually quite different in color, size and texture. The shell is extremely hard and flinty, with a smooth, slightly glossy surface, and quite thick; it will dull the cutting edges of the best drills in a short time. In shape they vary from a somewhat rounded to a considerably elongated elliptical ovate, sometimes nearly oval.

In color they vary from a light olive buff, matching almost exactly certain types of Mallard's eggs, to a light cream buff. The eggs are larger than the Mallard's eggs, and the nest is entirely different, being made of dead reeds and lined with white down. The eggs are entirely different in color from those of the Canvasback, which builds a somewhat similar nest and in similar situations, but lines it with gray down.

The measurements of twenty-six eggs in my collection show the following figures: length, 2.63 to 2.31; breadth, 1.79 to 1.68; average, 2.45 by 1.72.

***Aythya vallisneria* (Wils.). CANVASBACK.**

The Canvasback is not one of the commonest species in North Dakota, and is restricted, during the breeding season at least, to certain favorable localities. The settlement of the country and the demands of agriculture have led to the draining and drying up of many of the large deep water sloughs, which tends to restrict the distribution of this species. A fine, large slough in Nelson County, where Mr. Job found the Canvasback breeding abundantly in 1898, is now entirely dried up, the birds having disappeared from that locality. I believe Dr. Bishop failed to find any nests of this species on his previous visit to Towner County, North Dakota, though several pairs of the birds were seen, and a local collector of considerable experience told me that he had never seen the nest of the Canvasback.

Our experience with this species was confined to two large deep sloughs in Steele County, where we found them breeding in fair numbers. I understand that there are some large sloughs in Eddy County where the Canvasbacks breed, and I have no doubt they can be found in suitable sloughs throughout all the northern portions of the State.

The principal object of our visit to the sloughs in Steele County was to study the breeding habits of the Canvasbacks, so, soon after our arrival here, late in the afternoon of June 7, we put on our hip boots and started in to explore the northern end of the big slough, shown in the photograph (Pl. III, Fig. 1), and referred to under my remarks on the Redhead. In the large area of open water we could see several male Canvasbacks and a few Redheads swimming about, well out of gun range. Wading out through the narrow strip of reeds surrounding the open water, and working along the outer edge of these, we explored first the small isolated patches of reeds shown in the foreground of the picture. The water here was more than knee deep, and in some places we had to be extremely careful not to go in over the tops of our boots, so that progress was quite slow. We had hardly been wading over ten minutes when, as I approached one of these reed patches, I heard a great splashing, and out rushed a large, light brown duck which, as she circled past me, showed very plainly the long sloping head and pointed bill of the Canvasback.

A short search in the thick clump of tall reeds soon revealed the nest with its eleven eggs, eight large, dark-colored eggs of the Canvasback and three smaller and lighter eggs of the Redhead. It was a large nest built upon a bulky mass of wet dead reeds, measuring 18 inches by 20 inches in outside diameter, the rim being built up 6 inches above the water, the inner cavity being about 8 inches across by 4 inches deep. It was lined with smaller pieces of dead reeds and a little gray down. The small patch of reeds was completely surrounded by open water about knee deep, and the nest was so well concealed in the center of it as to be invisible from the outside. The eggs were also collected on that day, and proved to be very much advanced in incubation.

The other nests of the Canvasback that we found were located in another slough about half a mile distant which was really an arm of a small lake separated from the main body of the lake by an artificial dyke or roadway with a narrow strip of reeds and flags on either side of it. In the large area thus enclosed the water was not much more than knee deep, except in a few open spaces where it was too deep to wade.

In another section of the slough, among open, scattered reeds, the Pied-billed Grebes were breeding abundantly. A few pairs of Ruddy Ducks had their nests well concealed among the tall thick reeds. Coots and Yellow-headed Blackbirds were there in almost countless numbers, Long-billed Marsh Wrens were constantly heard among the tall thick flags, Red-winged Blackbirds, Soras and Virginia Rails were nesting abundantly in the short grass around the edges. Marbled Godwits and Western Willets were frequently seen flying back and forth over the marshes, acting as if their nests were not far away, and clamorously protesting at our intrusion; Killdeers and Wilson Phalaropes hovered about us along the shores. Such is the home of the Canvasback, an ornithological paradise, a rich field indeed for the naturalist, fairly teeming with bird life. Our time was very much occupied during our visit to this interesting locality, and the days were only too short and too few to study the many interesting phases of bird life before us, but we devoted considerable time to the Canvasback, and, after much tiresome wading, succeeded in finding three more nests in this slough.

The first of these was found on June 8, while wading through a

thick patch of very tall flags, higher than our heads; we flushed the female from the nest and had a good look at her head as she flew out across a little open space. The nest was well concealed among the flags, but not far from the edge. It was well built of dead flags and reeds, in water not quite knee deep, and was sparingly lined with gray down. This nest contained eleven eggs, seven of the Canvasback and four of the Redhead, which were collected on June 13 and found to be just on the point of hatching. A photograph of this nest is shown herewith (Pl. IV, Fig. 1).

Another nest, found on June 8, was located in a small, isolated clump of reeds, surrounded by water over knee deep, on the edge of a large pond-like opening in the center of the slough, as is admirably illustrated in the photograph (Pl. IV, Fig. 2), kindly loaned me by Mr. Job.

The nest was beautifully made of dead and green reeds firmly interwoven, held in place by the growing reeds about it, and sparingly lined with gray down. It was built up out of the water, which was about 10 inches deep, so that the rim was about 5 inches above the surface of the water; the external diameter was about 14 inches and the inner cavity measured 7 inches across by 4 inches deep. The nest and eggs, now in my collection, were taken on June 11, at which time incubation was only just begun; it contained eight eggs of the Canvasback and one of the Ruddy Duck. All the Canvasbacks' nests that we found contained one or more eggs of the Ruddy Duck or Redhead, but we never found the eggs of the Canvasback in the nest of any other species. The Canvasbacks are close sitters, generally flushing within ten feet of us, so that we had no difficulty in identifying them by the peculiar shape of the head; in general appearance they resemble the Redheads very closely, except that the female Canvasback is lighter colored above. The eggs can be readily distinguished by their color, which is a rich grayish olive or greenish drab of a darker shade than that usually seen in the eggs of the other species.

The gray down in the nest will also serve to distinguish it from the Redhead's nest, which is generally more profusely lined with white down. In shape they are between ovate and elliptical ovate; the measurements of fifteen eggs show the following figures: length, 2.57 to 2.36; breadth 1.80 to 1.68; average, 2.48 by 1.75.



FIG. 1. NEST AND EGGS OF CANVASBACK.



FIG. 2. NEST AND EGGS OF CANVASBACK.